ENTACT
environmental services

Date: April 3, 2008

To: Juan Thomas, U. S. EPA

From: Patricia Thomson, P.G., ENTACT

Cc: Jesse Padilla, Gonzalez, Saggio & Harlan LLP
Edward (Ned) Witte, Gonzalez, Saggio & Harlan LLP

Re: Evaluation of the 2008 1st Semi-annual Groundwater Sampling Results and Baseline Ecological Risk Assessment (BERA) for the former Johnson Controls Inc. (JCI) Stanley Tool Site, Fowlerville, MI and Proposed Well Relocation/Abandonment Plan

Dear Mr. Thomas:

This technical report presents the results of the 1st Semi-annual 2008 groundwater sampling event conducted between March 4 and March 8, 2008, and the Baseline Ecological Risk Assessment (BERA) for the former JCI Stanley Tool Site in Fowlerville, Michigan (Site) (Figure 1). This report also presents our recommendation for the removal and replacement of certain monitoring wells in the Groundwater Monitoring Program (GWMP), as well as the abandonment of non-GWMP monitoring wells. Our findings and recommendations are as follows.

Introduction

A teleconference was held on February 26, 2008 between the United States Environmental Protection Agency (U.S.EPA), the outside legal counsel for Johnson Controls Inc. (JCI)'s, and ENTACT to discuss proposed plans by the current Property Owner, American Compounding Specialties, Inc. (American Compounding), to begin significant building expansion and flood plain filling activities in late April or early May, 2008. Previous construction activities by American Compounding associated with construction of the initial facility had resulted in damage to two monitoring wells in the approved GWMP (MW-08 and MW-25), and three additional monitoring wells not included in the GWMP which were found to be covered or removed during the July 2007 well survey (MW-06, MW-07, MW-12). The proposed 2008 expansion and filling activities will further impact existing monitoring wells at the Site based on the American Compounding proposed expansion and fill plans presented in Attachment 1. The proposed construction activities will necessitate relocation and replacement of certain monitoring wells currently in the GWMP that have already been damaged or are at risk of being damaged, and proper decommissioning and removal of those monitoring wells not included in the approved GWMP that fall within the proposed expansion or fill footprint.

Pursuant to that discussion, the March 2008 groundwater sampling results along with the

completed BERA results are presented in this Technical Report along with the proposed well relocation and abandonment plan for review and comment by the to the U.S.EPA. Following U.S.EPA review and approval, monitoring wells that currently fall within the planned construction footprint will either be relocated and replaced, or properly decommissioned in accordance with state regulations. American Compounding has been advised that no construction or filling activities should be initiated until the U.S.EPA has reviewed and approved the proposed well relocation or abandonment plan for wells that will be affected by the proposed facility expansion. As American Compounding was looking to start the proposed construction activities in late April or early May, JCI agreed to conduct the 2nd round of groundwater sampling earlier than planned in order to submit the results along with the BERA results as early as possible to allow the U.S.EPA time to review and approve this information before construction activities begin.

1ST SEMI-ANNUAL 2008 GROUNDWATER SAMPLING EVENT

The 1st semi-annual 2008 sampling event was conducted between March 4 and March 6, 2008 in accordance with the approved *June 2007 Modified Corrective Measures Implementation Program Work Plan (CMIP Work Plan)* and the *U.S.EPA Final Decision and Response to Comments - Selection of Remedial Alternatives for the Site*, with the omission of two previously-damaged wells (MW-08 and MW-25). Eleven of the 17 remaining wells in the approved groundwater monitoring program (GWMP) were sampled at this time including MW-02, MW-11, MW-14, MW-17, MW-22, MW-24, MW-26, MW-A2, MW-B-1, MW-B2, and MW-J2. The remaining six monitoring wells in the GWMP could not be accessed due to site conditions (heavy snow and high water levels). These include background wells MW-28 and MW-28C, on-Site MW-21, and off-Site wells MW-OS1, MW-OS3 and MW-OS3C. Well locations are presented in Figure 2. As soon as the water levels fall to a point where the field crew can reach these wells, the six remaining wells will be sampled and results submitted to the U.S.EPA as an Addendum to this April 4, 2008 Technical Report. It is believed that the data from the 11 monitoring wells that were sampled will provide sufficient information to allow for reaching a decision on the proposed relocation/abandonment plan.

Prior to sample collection, static water level (SWL) measurements were collected. The SWLs and calculated groundwater elevations were used to determine groundwater flow direction in the shallow saturated horizon, which correlated with previous findings that shallow flow is toward the Red Cedar River, with a westerly flow direction across the Site on the east side of the river, and a northeasterly direction of flow from the properties west of the river. The groundwater flow potentiometric map, presented in Figure 3, shows that the groundwater flow direction remains consistent with previous sampling events.

The wells were sampled by CTI & Associates, of Brighton, Michigan, as part of the GWMP for the listed parameters shown in the following table:

Well Location	Horizon	Purpose	Frequency	Parameters
MW-02	Shallow	Performance/MNA	Semi-annual	VOCs
MW-08	Shallow	GSI Compliance	Semi-annual	DAMAGED – not sampled

Well Location	Horizon	Purpose	Frequency	Parameters
MW-11	Shallow	On-Site Plume boundary	Semi-annual	VOCs, total CN-, 10 MI metals [2]
MW-14	Shallow	GSI Compliance/Off-Site Plume boundary	Semi-annual	VOCs, total CN-
MW-17	Shallow	GSI Compliance/ Performance/MNA	Semi-annual	VOCs, total CN-, 10 MI metals, Ni, Cr+6, MNA parameters [1]
MW-21	Shallow	GSI Compliance	Semi-annual	To be sampled in April 2008: VOCs, CN-, 10 MI metals, Ni, Cr+6,
MW-22	Shallow	GSI Compliance	Semi-annual	VOCs, total CN-, 10 MI metals, Ni, Cr+6,
MW-24	Shallow	GSI Compliance	Semi-annual	VOCs, total and available CN-, 10 MI metals, Ni, Cr+6,
MW-25	Shallow	Performance/MNA	Semi-annual	DAMAGED – not sampled
MW-26	Shallow	GSI Compliance	Semi-annual	VOCs, total CN-, 10 MI metals, Ni, Cr+6
MW-28	Shallow	Background GW Quality	Semi-annual	To be sampled in April 2008: VOCs, 10 MI Metals, Ni, CN-
MW-28C	Deep	Background GW Quality	Semi-annual	To be sampled in April 2008: 10 MI Metals
MW-A2	Deep	GSI Compliance	Semi-annual	VOCs, total CN-, 10 MI metals, Ni, Cr+6,
MW-B1	Shallow	GSI Compliance	Semi-annual	VOCs, total CN-, 10 MI metals, Ni, Cr+6, MNA parameters [1]
MW-B2	Deep	Vertical Plume Monitoring	Semi-annual	VOCs, total CN-, 10 MI metals
MW-J2	Deep	Vertical Plume Monitoring	Semi-annual	VOCs, total and available CN-, 10 MI metals
MW-OS1C	Deep	Off-site Vertical Plume Monitoring	Semi-annual	To be sampled in April 2008: VOCs, CN-, 10 MI metals
MW-OS3	Shallow	Off-site plume monitoring	Semi-annual	To be sampled in April 2008: VOCs, CN-, 10 MI metals
MW-OS3C	Deep	Off-site plume monitoring	Semi-annual	To be sampled in April 2008: VOCs, CN-, 10 MI metals

Green shading indicates the well found damaged during the 2007 well survey
Blue shading indicates wells which could not be accessed due to heavy snow and high water conditions – these wells are slated for sampling as soon as conditions permit – estimate early April 2008
[1]: MNA: monitored natural attenuation parameters include sulfates/sulfides, nitrates/nitrites, ferrous/ferric iron, alkalinity, hardness, manganese, chemical oxygen demand, ethane/ethane
[2]: The 10 MI metals include: arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, copper, and zinc.

The groundwater samples were collected using low-flow minimal drawdown sampling methodology in accordance with the U.S.EPA *Ground Water Issue Paper – Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504 (April 1996)*. The samples were submitted to Trimatrix Laboratories of Grand Rapids, Michigan for analysis in accordance with the approved 2003 Quality Assurance Project Plan (QAPP) prepared by Earth Tech/Weston (ETW) and the Work Plan. The complete analytical results are provided in Attachment 2.

A summary of the analytical results in comparison to the MDEQ Generic Groundwater-Surface Water Interface (GSI) cleanup criteria, Worst Case Maximum Site Concentration values, and the MDEQ Mixing Zone Final Acute Values (FAVs) and in comparison to the July 2007 results are summarized in Table 1.

Metals

Total and dissolved chromium were detected in MW-B2 at levels of 5.7 µg/L and 1.9 µg/L respectively, below the Michigan Department of Environmental Quality (MDEQ) generic groundwater-surface water interface (GSI) criterion of 230 µg/L. As shown in Table 1, the previous July 2007 results showed no detectable levels of total or dissolved chromium at this location. No other dissolved metal exceedences of the calculated GSI criteria, MDEQ-determined Final Acute Values (FAVs) or Reported Worst Case Maximum Site Concentrations were found in any of the 11 wells that were sampled.

Total copper was detected in MW-11 at 4.8 µg/L, lower than the level of 44 µg/L found during the 2007 semi-annual sampling event, and falling below the Part 201 GSI criterion of 29 µg/L. Total cadmium continues to be detected in MW-J2 at levels over the Part 201 criterion, but the corresponding dissolved cadmium results fell below the GSI criterion. This indicates that copper and cadmium are more likely associated with suspended fines in the sample rather than actual groundwater quality, minimizing the potential for migration to the Red Cedar River. Both the total copper and total cadmium values were below the Worst Case Maximum Site Concentrations and the Final Acute Values (FAVs).

Total cyanide was analyzed for all 11 of the groundwater samples. At two location (MW-J2 and MW-24), available (amenable) cyanide (upon which the GSI, FAV and worst case concentration values are based) was also analyzed since the 2007 total cyanide levels at these locations were above the GSI and/or FAV criteria applicable to available cyanide. This would determine if available cyanide was present at levels above the GSI criterion of 5.2 µg/L or the FAV criterion of 44 µg/L. Total cyanide was detected at MW-J2 at 45 µg/L with a corresponding available cyanide concentration of < 2 µg/L, which is below the GSI criterion. Total cyanide was detected in MW-24 at 48 µg/L, with a corresponding available cyanide concentration of <2 µg/L, below the GSI criterion. The results support historical sampling results for the Site, which showed the concentrations of free cyanide (when detected) were always less than 30 percent of the measured total cyanide concentration. Therefore the total cyanide concentration of 11 µg/L at MW-26 and 14 2 µg/L at MW-17 are considered to represent an associated available cyanide value below the GSI criterion of 5.2 2 µg/L.

Volatile Organic Compounds

A summary of the analytical results for volatile organic compounds (VOCs) in comparison to the MDEQ Generic GSI cleanup criteria, Worst Case Maximum Site Concentration values, and the MDEQ Mixing Zone FAVs is presented in Table 1.

Exceedences of the GSI values continued to be detected in monitoring well MW-02 which shows the highest levels of residual VOCs at the Site. Cis-1,2-dichloroethene (cis-1,2-DCE) was found

at 600 µg/L, a decrease from the level found in 2007 and dropping below the GSI criterion of 620 µg/L. Trichloroethene (TCE) was detected at 3,600 µg/L above the GSI criterion of 200 µg/L), slightly higher than the 2007 concentration and rising just above the FAV of 3,500 µg/L. The TCE concentration remains below the worst case concentration of 4,200 µg/L upon which the FAV was determined. MW-02 is located along the eastern Site boundary in the vicinity of former SWMU L, and is an upgradient Site well based on the determined shallow westerly groundwater flow direction. The TCE levels at MW-02 have remained relatively constant since 2003, while monitoring wells downgradient of this area show more significant declines from the TCE levels as shown in Table 1. Downgradient well results from MW-24, MW-17, MW-B1 and MW-11 show that levels are significantly lower, ranging between 0.60 µg/L to 11 µg/L, below the GSI criterion. This indicates that though there remains residual source material in the vicinity of MW-02, migration of contaminants from this location is limited by effective and on-going natural attenuation processes.

TCE degradation products cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride and ethene and ethane have been detected in the downgradient wells. Cis-1,2-DCE was detected in five downgradient wells (MW-26, MW-17, MW-B1, MW-14 and MW-11) at levels ranging from 0.77 J µg/L to 300 µg/L, below the GSI criterion. Vinyl chloride continues to be detected in MW-B1 (56 µg/L) and MW-17 (26 µg/L) at levels above the GSI criterion of 15 µg/L. Though Mixing Zone FAVs were not developed for vinyl chloride, the maximum concentration of vinyl chloride detected on Site was 330 µg/L detected at MW-17 in November 2003. This maximum value was used by the MDEQ in modeling the estimated surface water concentration at the discharge point and comparison to GSI criteria using the MDEQ 90Q10 flow value for the Red Cedar River of 3.8 cubic feet per second. The predicted concentration at the surface water discharge point was considered within acceptable limits. Therefore the detected vinyl chloride values of 26 to 56 µg/L, which are an order of magnitude below the 2003 maximum concentration used in the modeling, are considered to be within acceptable limits.

No other VOC compounds were detected in any of the wells in excess of the generic GSI criteria.

MNA Parameters

The analytical results for MNA parameters for the two wells (MW-B1 and MW-17) are summarized in Table 2 in comparison to the 2007 values. The results indicate that degradation is continuing to occur in downgradient locations. Specifically, the analytical data show the presence of TCE degradation by-products at higher levels than the parent compound TCE in downgradient wells. As shown on Table 3, endpoint daughter product, ethane and ethylene, were detected in both MW-17 (0.83 J µg/L and 1.3 µg/L) and in MW-B1 (2.3 µg/L and 1.4 µg/L) indicating that degradation processes are effectively reducing TCE by-products to the endpoint product ethylene which poses no risk.

BASELINE ECOLOGICAL RISK ASSESSMENT

A BERA was conducted in response to the U.S.EPA December 1, 2006 Final Decision for the JCI Former Stanley Tool Facility, Fowlerville, Michigan which recommended that additional ecological testing be conducted to:

- Ensure contaminants were not present in the stream at levels deemed harmful to aquatic life; and

- Define areas with exceedences falling between preliminary screening criteria, specifically the Threshold Effect Concentrations (TECs) and Probable Effects Concentrations (PECs).

- Utilizes results of the BERA and previous site investigation data to isolate the areas of sediment that will be removed and to establish site-specific cleanup goals

The TECs and PECs are literature-based values for freshwater ecosystems used by the MDEQ as screening criteria. TEC values are defined as threshold concentrations below which adverse effects to the most sensitive of ecological receptors are not expected to occur. PECs are defined as concentrations above which adverse effects to the most sensitive of ecological receptors probably would occur. These adverse effects are typically determined by exposure by the most sensitive of ecological receptors in high-quality, freshwater ecosystems. The Middle Fork of the Red Cedar River is not considered to be a high-quality, freshwater ecosystem but rather a shallow, warm water stream which is too small to be navigated safely and too shallow to support a sports fishery or attract recreational activities. Therefore the TECs and PECs represent worst-case values which were refined using information gathered during the BERA to develop site-specific cleanup levels that are more applicable to the actual stream conditions.

The BERA utilized the Triad Approach as defined in the *Sediment Classification Methods Compendium (*EPA, 1992b), to further investigate potential ecological risks. The Triad Approach incorporates measures of sediment chemistry (chemical contamination), sediment bioassays (toxicity) and benthic communities (changes in benthic community structure) to support the establishment of site-specific sediment clean-up levels. The complete BERA is presented Attachment 3 and includes sediment sampling, bioassay testing and community survey results, as well as associated risk calculations and assumptions.

BERA Proposed Cleanup Objectives Summary

The BERA addressed the following contaminants of potential concern (COPCs) that have been detected in the sediments of the Red Cedar River; polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), and select heavy metals.

PCBs and PAHs were not detected or detected infrequently in the BERA sediment samples. As such, a site-specific cleanup level cannot be determined from the BERA dataset for these contaminants.

As presented in the FCMP (ET/W, 2004), an ecological-based, sediment cleanup value of 1 mg/kg, as a surface weighted average concentration (SWAC) was proposed for PCBs. The site-wide SWAC concentration for PCBs calculated from historical site data (0.1526 mg/kg) does not exceed this proposed cleanup level.

For the total PAHs, the mid-point of the TEC and PEC is proposed as the cleanup level (12.205 µg/kg-total PAH at 1% organic carbon). The maximum normalized total PAH concentration in the historic dataset (ET/W, 2004) is 5.470 µg total PAH/kg, and does not exceed the proposed cleanup level.

For the remaining COCs in sediments of the Red Cedar River, the calculated BERA cleanup objectives are summarized below along with the literature-based TEC and PEC values cleanup levels:

Total Metals	Chromium	Copper	Lead	Nickel	Zinc
Threshold Effects Concentration (mg/Kg)	43.4	31.6	35.8	22.7	121
Probable Effects Concentration (mg/Kg)	110	150	130	48.6	459
Proposed BERA Cleanup Objectives (mg/Kg)	133	150	130	58	527

The BERA data indicate that those metal concentrations identified in the *February 2004 Earth Tech Technical Memorandum: Sediment Quality Survey, Preliminary Sediment Cleanup Criteria and Data Evaluation for the Red Cedar River, Former Stanley Tools, Fowlerville, MI*, which fell between the literature-based screening TEC and PEC values are not considered to pose a risk to aquatic life in the Middle Fork of the Red Cedar.

The selection of these cleanup levels are supported by the sediment chemistry data, bioassay results, and community survey results for samples SD-E2-003, SD-C1-005, and SC-A1-006. Concentrations of chromium, lead, nickel and/or zinc exceeded published PEC concentrations in these three samples. However, toxic effects to benthic organisms were observed in the bioassays results only for locations SD-E2-003 and SD-C1-005. At SD-E2-003, lead is clearly the risk driver; at SD-C1-005, nickel and zinc are the risk drivers.

Although the concentrations of chromium, nickel and zinc at SD-A1-006 exceeded their respective PEC values, no toxic effects were found in the bioassay. In addition, MBI values for this location were the lowest observed at any of the community survey locations. Therefore, the observed concentrations of these contaminants at SD-A1-006 are proposed as their clean-up objectives.

The concentration of lead found in sediments at SD-E2-003 (789 mg/kg) is well above published TEC and PEC levels. It is notable however, that lead has not been detected at highly elevated concentrations within any other investigative sediment sample collected in the River at or near the Site. Specifically, of the 133 historic (ET/W, 2004) and BERA-related sediment samples collected and analyzed for lead excluding sample SD-E2-003, the maximum and mean concentrations observed, were 97 mg/kg (at SD-L1), and 13.3 mg/kg, respectively. These values are below the published PEC value (130 mg/kg) for this contaminant. Because of the lack of data between the extreme value detected at SD-E2-003 and the remaining sample population from which inferences may be drawn regarding observable toxic effects, the published PEC value for lead is considered appropriate as a clean-up objective.

Elevated concentrations of copper in sediments in the Red Cedar River are co-located with similar elevated concentrations of chromium, nickel and/or zinc. Although the concentrations of copper in the BERA sediment samples are somewhat elevated in samples SD-E2-003, SD-C1-005, and SC-A1-006, copper does not appear to drive risk in any samples. Thus, the published PEC value for copper is considered appropriate as a clean-up objective.

A comparison of the proposed BERA cleanup objectives to previous sediment sample results shows the following sample locations with one or more metals above the BERA-determined values:

Sample ID	Sample Date	Depth (in)	Total Cr (mg/Kg)	Total Cu (mg/Kg)	Total Ni (mg/Kg)	Total Zn (mg/Kg)
SD-A1	2003	0 - 12	97	85	**71**	372
SD-C1-005	2007	0 - 6	77.2	107	**267**	**675**
SD-E1	2003	0 - 12	**181**	**230**	**87**	289
SD-E2	2003	0 - 12	**1760**	**1370**	**189**	**1930**
SD-E2	2003	12 - 24	**396**	**513**	**165**	**721**
SD-E2-003	2007	0 - 6	112	133	43.5	158
SD-H1	2003	0 - 12	**771**	**563**	**150**	**784**
SE/RC-1/3	1991	0 - 3	**1420**	**769**	**374**	**1590**
SE/RC-2/3	1991	0 - 3	**240**	**227**	**133**	232
SE/RC-3/3	1991	0 - 3	74.8	114	**77.9**	**658**
SE/RC-3/12	1991	6 - 12	**252**	421	**349**	**921**
SE/RC-5/3	1991	0 - 3	**451**	302	**87.9**	425
SE/RC-6/2	1991	6 - 12	**448**	713	**432**	**2120**
SE/RC-7/1	1994	0 - 3	**200**	**175**	**62.2**	163
SE/RC-7/2	1994	6 - 12	**690**	**622**	**267**	466
SE/RC-9/1	1994	0 - 3	**170**	108	**67.1**	152
SE/RC-9/2	1994	6 - 12	**558**	**293**	**117**	463
SRC-17	2000	0 – 0	**404**	NA	NA	NA
BERA Clean-Up Objective (mg/Kg)			133	150	58	527

Bold value indicate an exceedence of the clean-up objective

The estimated volume of sediments listed above that will be removed as part of the Final Corrective Measures (assuming a 1 to 2 foot removal depth) is approximately 900 to 1,700 cubic yards. Upon sediment removal, confirmation samples (0-6 inch depth) will be collected from each dredge area. A representative average concentration of residual COCs will be calculated to demonstrate compliance with the proposed cleanup objectives.

PROPOSED WELL RELOCATION/ABANDONMENT PLAN

The groundwater monitoring results indicate that conditions of the Site are stable following the soil removal action. Migration of contaminated groundwater to Red Cedar River continues to be under control and groundwater flow directions remain constant. The BERA has allowed the identification and isolation of areas of sediment that will be removed and has established site-specific cleanup goals to ensure protection of ecological receptors over the long term.

The approved groundwater monitoring program was designed to provide sufficient rounds of data to satisfy the Agency that groundwater contaminant migration is, and will remain, under control while natural attenuation mechanisms degrade residual contaminants in shallow groundwater over the long term. The approved GWMP even without sample results for damaged wells MW-25 and MW-08 has effectively accomplished this. As indicated in Section 6.2.1, following two years of semi-annual groundwater sampling (4 sampling events), the GWMP will be assessed to determine whether the program an be modified, reduced or terminated. This GWMP assessment will be performed after the 1st semi-annual event in 2009.

The proposed well relocation and replacement plan has been designed to replace the wells currently in the approved program which either have been damaged or are at risk of being damaged as part of the upcoming facility expansion construction. There are five wells currently in the GWMP that have been or are at risk of being damaged: MW-08, MW-11, MW-25, MW-26 and MW-J2. Based on the proposed expansion footprint provided in Attachment A, MW-11 along the west wall of the facility is considered at risk of being damaged and is proposed for removal and replacement. MW-11 will be relocated approximately 70 feet west of damaged well MW-25 at the base of the bermed area shown in Figure 4. Damaged well MW-25 will then be properly abandoned and not replaced since MW-11 will provide sufficient data in this area of the Site. Damaged well MW-08 will be properly abandoned and replaced in the same proximity at the base of the bermed area as it will be used in lieu of MW-11 in providing information along the Site's south boundary.

MW-26 and MW-J2 are located in the proposed floodplain mitigation area. These wells will be properly abandoned as this area is expected to be prone to flooding under the proposed floodplain filling and mitigation plan currently under review by the MDEQ. MW-26 and MW-J2 will be relocated outside the proposed flood mitigation boundary approximately 100 feet to the south, along the river edge to continue to monitor groundwater at the river boundary. Based on the map, the proposed floodplain mitigation boundary abuts the existing SWMU A to the north which prevents moving the wells in that direction. The west perimeter of the Site nearest the river is then be monitored by MW-22, MW-A2, MW-24, MW-B1 and MW-B2 as well as relocated MW-26 and MW-J2 which is more than adequate to properly monitor groundwater flow to the river

All remaining wells not in the GWMP that are located in either the proposed facility expansion footprint or in the proposed floodplain fill or mitigation areas will be properly abandoned. This includes the following twelve wells: MW-03, MW-04, MW-05, MW-09, MW-10, MW-18, MW-19, MW-E2, MW-JC and MW-BKC1, BKC2 and BKC3.

Three wells not in the GWMP (MW-06, MW-07, and MW-12) located in or adjacent to the existing American Compounding facility were found to have been either covered over or removed as a result of previous construction activities during the 2007 well survey. Therefore these wells cannot be properly abandoned.

An additional three wells located in the fenced area north of the facility (MW-G1, MW-G2 and OW-16) and off-Site well MW-26C, located on approximately 600 feet west of the river could not be found during the well survey. If these wells are found and not at risk of being

compromised as part of the upcoming construction they will be left in place until such time as the GWMP can be terminated.

CONCLUSION

The first year of semi-annual sampling results show that groundwater migration continues to remain under control at the Site following the soil removal action. In the vicinity of upgradient well, MW-02, VOC levels have remained similar to those found in 2003, but there is no significant migration from this location, as shown by downgradient well results. Downgradient wells MW-24, MW-17, MW-B1 and MW-11 show that total VOC levels are significantly lower than detected in 2003 and the concentrations have remained well below the total VOC levels observed in MW-02 since 2003. This indicates that though there remains residual source material in the vicinity of MW-02, migration of contaminants from this location is limited by effective and on-going natural attenuation processes.

Site-specific cleanup objectives determined in the BERA were exceeded in defined areas for chromium, copper, nickel and zinc which will be addressed as part of a sediment removal action. No additional contaminants were present in sediments at levels above the defined risk-based levels

Based on the BERA and groundwater sampling results, the current GWMP, without the two damaged wells (MW-08 and MW-25) has effectively monitored the existing groundwater plume and no significant groundwater migration has been found. This information along with the MNA results shows that natural attenuation mechanisms are effectively controlling contaminant migration in shallow groundwater at the Site. Therefore it is recommended that existing monitoring wells currently not in the GWMP that fall within the proposed expansion or floodplain filling footprints along with damaged well MW-25 be properly abandoned as these wells are not necessary in ensuring the effectiveness of the corrective action conducted at the Site nor the long-term protection of the Red Cedar River. There are five wells currently in the GWMP that have been or are at risk of being damaged by American Compounding's previous and proposed construction activities: MW-08, MW-11, MW-25, MW-26 and MW-J2. These wells will be relocated and replaced to ensure they can be effectively sampled for the next year.

TABLES

FIGURES

ATTACHMENT 1

PROPOSED AMERICAN COMPOUNDING EXPANSION PLANS

ATTACHMENT 2

LABORATORY ANALYTICAL REPORT FOR 1ST SEMI-ANNUAL 2008 GROUNDWATER SAMPLES

ATTACHMENT 3

BASELINE ECOLOGICAL RISK ASSESSMENT